

Lessons Learned Report

Foss Maritime Barge 248-P2 Spill Point Wells Facility Shoreline, Washington December 30, 2003



photo by CDR Thomas Callahan, NOAA 12/30/03-1130

Prepared for the Washington State Department of Ecology
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FOSS MARITIME BARGE 248-P2 OIL SPILL
POINT WELLS FACILITY
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Foreword By:
The Washington State Department of Ecology

The Washington State Department of Ecology's Spill Prevention, Preparedness, and Response Program commissioned this report to capture the lessons learned in responding to Foss Maritime's significant oil spill. Such spills are costly, and the learning opportunity comes at a premium not to be lost.

All spills are preventable, and this spill was no exception. Prevention remains our top priority. We will examine all potential prevention measures as we develop future initiatives and rules in response to the legislative direction we received after this spill.

Much will be made in this report of the missed chances and needed improvements for future spill preparation and response. This is as it should be. Ecology is committed to a learning culture and continuous improvement. That said, it should be equally recognized that this spill occurred in the middle of a winter night. The responsible party, Foss Maritime Company, launched a response that, when measured by the number of vessels and depth of the Spill Management Team, was an aggressive one. The lessons to be learned here come in spite of this aggressive response.

Finally, the content of this report represents the research and view of Genwest Systems, Inc. In publishing this report, Ecology has not altered its content. However, it is appropriate that we add our voice by offering our selection of lessons (limited to preparedness and response issues) that we believe carry the greatest environmental payback.

1. Trained Beach Cleaners and Immediate Access to Beach Cleaning Equipment:
Ecology has yet to see a significant oil spill in state waters that did not harm beaches. Skimming oil in open water is a valuable tactic, but an insufficient one. Further, there are indications that the 4,600-gallon Point Wells spill used all of the locally available and trained beach cleaners. More needs to be known about the supply of these workers and their equipment, and steps are needed to ensure an adequate supply is quickly available for a larger spill.

2. Tracking Oil at Night: Many of Washington's significant oil spills have occurred in darkness. Rarely have there been attempts to maintain contact with the oil at night to assist nighttime skimming, or to position skimmers in darkness to begin operations at first light. This lost contact with the oil reduces successful skimming and promotes beach impacts. Resources such as infrared imaging and lighted buoy tracking are available. Rapid and skillful use of oil tracking in darkness is needed.
3. Immediate and Sufficient Aircraft: Perhaps the most frequently second guessed spill response issue is early and adequate over flights. This spill again spotlighted the need to *continuously* direct open water skimmers from the air, while also having sufficient additional aircraft to provide familiarization flights to spill managers and tactical information to natural resource experts protecting sensitive habitats.
4. Rigorous Drill Program Including Unannounced Drills: The initial containment issues highlight the need to focus on realistic drill design with an emphasis on unannounced drills, including cold starts of equipment. Complacency in designing drill objectives should be avoided. Within this region, it is also important to emphasize training in the Incident Command System.

Ecology would like to thank Foss Maritime Company; Clean Sound Cooperative; Marine Spill Response Corporation; National Spill Response Corporation; the Suquamish Tribe; the U.S. Coast Guard; the Washington State Departments of Fish and Wildlife, Natural Resources, and Health; the Washington State Parks and Recreation Commission; Kitsap County D.E.M.; and all the other private and governmental parties that participated in this spill response.

Introduction

On 30 December 2003 at the Chevron-Point Wells Facility at Shoreline (Seattle), Washington the Tank Barge FOSS 248-P2 was taking on bunker fuel (Fuel Oil #6). At 0005, a tank was overfilled resulting in approximately 110 bbl (4,620 gallons) spilling into the waters of Puget Sound. Most of the oil initially moved south along the shoreline for a distance of about 5 nautical miles with no beach impacts except in the immediate vicinity of the facility. Oil then moved to the Northwest until it beached in Port Madison, between Point Jefferson and Indianola about 1330. Approximately 1.5 miles of beach and a salt-water marsh were subsequently oiled. All removal activities were completed and the final multi-agency signoff occurred on 29 April 2004.

On day 1 there were 52 people in the on-water skimmer group, 56 people in the on-shore group, and 136 people in the command post. Eight on-water skimmers, 13 spill response/work boats, 3 shallow water barges, 5 vacuum trucks, and 3 helicopters were employed in the response. About 17,000 feet of boom was deployed at the facility and at 8 Geographic Response Plan (GRP) “sensitive” sites.

The weather was unusually cold for the Seattle area with temperatures for three days in the 20’s followed by 2 days with snow. The beach cleanup was further complicated by daytime high tides.

The following are discussions of lessons learned from the emergency phase of the spill with a focus on the technical aspects of the response. Sources included:

- an internal discussion held at the Dept. of Ecology in Lacey on May 4, 2004
- other WDOE informal debrief documentation
- Incident Command System (ICS) documentation from the incident
- Foss’ Drill Credit Documentation Report of April 16, 2004
- National Response Corporation Witness Statements
- Personal communications.

Lessons learned are listed in relative order of importance; safety issues first followed by items affecting recovery of oil. The lessons learned Section is followed by a List of Things That Went Well.

Site Security Was Inadequate

The Suquamish Tribe assumed beach site access control for the shoreline impacts on their land. There was a Safety Plan in place, but when beach cleanup operations began on the second day of the spill, there was a lack of site safety control on the beaches. During this time there was no flagging and no site safety briefing for workers (not the responsibility of the Tribe). However, site access was not controlled as the media had free access to the beach spill response and the general public had equal access to beaches

(e.g. a boy was observed playing near the boom). On day 1 there was no marking of the helicopter landing zones on the beaches. Members of the Unified Command observed these safety concerns on day two and directed the Safety Officer to develop a site specific safety plan for beach operations. From that point on, a site safety officer was assigned of oversee beach cleanup activities including helicopter landing zones.

Lesson learned: Safety is the always the most important objective. Document concerns and aggressively pursue the issue.

Action: Provide ICS training for the tribes.

Spill Prevention Failed

The spill was preventable. With more eyes on the transfer operation, the spill would have been less likely.

Lesson learned: Need to have more than one person monitoring transfer.

Action: Issue for Oil Transfer Rule

Failure to Contain the Source

After the spill was discovered Chevron personnel attempted to launch two response boats to deploy the initial containment boom. Both engines cranked but neither would start. Cold weather may have been a factor. They jumped the battery on the main response boat and put it into the water. It started but wouldn't move. They pulled it out of the water and determined that the transmission had failed. They were about to try a third boat when NRC arrived and used their boat to deploy the initial containment boom. This chain of events lasted for an hour and a half, enough time for the majority of the spilled oil to spread out and move away from the dock with the currents.

Lesson learned: Equipment critical to the initial response must be in proper working order at all times. Test under all possible environmental conditions.

Action: Require pre-booming whenever feasible at all on-water oil transfer locations. With this approach, boom would be in place and any response equipment failure should be discovered prior to the start of the transfer. Require a specific maintenance schedule of all initial response equipment at regulated facilities and vessels. Place more emphasis on checking maintenance records at regulated facilities and vessels.

Aerial Control Of Skimmers Was Inadequate

Aerial reconnaissance of a response is important to direct resources, to observe wildlife, and to track oil to reinitialize the oil trajectory model. Continuous visual monitoring to maximize oil recovery is the first priority. Rotary wing aircraft are best suited for these tasks, but were initially in short supply due to year-end maintenance, existing charters, and other factors. A shortage of helicopter pilots was also evident. However, Coast Guard helicopters were not requested from the FOSC. Kenmore Air was on standby for a float plane but they were not considered necessary and were not activated. A short chronology of the first day 1 overflights follows:

0800 - The spill is first observed from the air by a news helicopter

0830 - A State-chartered Jet Ranger helicopter arrives from Olympia. Skimmers are observed outside heaviest concentrations of oil.

0900 - The Jet Ranger, now under charter to the response, takes off again with a State and a Clean Sound observer aboard. The Clean Sound observer redirects skimmers into the heaviest concentrations of oil.

1037 - The Jet Ranger performs an orientation overflight with Ecology and Department of Fish and Wildlife personnel but did not direct skimmers.

1110 - The Jet Ranger flies in support of Air Operations to direct skimmers. The Clean Sound observer has difficulty relocating the heaviest concentrations. When found, beach impacts are beginning to occur.

1110 - A Robinson 44 helicopter makes its first flight. This aircraft did not have FAA Part 135 Air Taxi Rules certification. Part 135 certification allows for Point A to Point B transport of passengers for hire. Stated more simply, it permits landing observers on the beaches. A third helicopter replaced the Robinson on day 2.

There was insufficient air reconnaissance to track oil movement, direct on-water oil removal, or to predict time and place of landfall of the oil. With continuous Air Operations observations and coordination of skimming assets, more oil would have been recovered. The Coast Guard has recognized the importance of continuous visual monitoring with a NPRM (Notice of Proposed Rulemaking), Vessel and Facility Response Plans for Oil: 2003 Removal Equipment Requirements and Alternative Technology Revisions, would “require plan holders to have the ability to conduct visual monitoring from aircraft.”...”The aircraft providing the initial surveillance and observation of a discharge would be required to arrive at the discharge site within 3 hours of the time of discovery of the discharge”...”Observation personnel should be separate from aircraft operations personnel.”...”Observation personnel must be trained in the protocols of oil spill reporting and assessment, including estimations of slick size, thickness, and quantity.”

Lesson learned: Continuous aerial observation of the oil and coordination of skimmers is critical, especially in the early hours of a response. Flights to direct skimming resources must have first priority. If helicopter assets are not available, fixed-wing aircraft are better than nothing. Helicopter vendors should be informed of mission objectives when contracted. FAA Part 135 certification may be required.

Action: None required for implementation of visual monitoring after NPRM is in place. Add module to WDOE DrillTrac for aerial observer training.

Nighttime IR Assets Were Not Considered

Nighttime tracking of locations of the oil slicks may have helped direct skimmers to the leading edges of the slicks. Many successful Infrared (IR) detections of oil slicks during hours of darkness have been made. Oil slicks have a higher emissivity than the surrounding water making them discernable in IR imagery. Evaporation of fresh oil increases the emissivity difference making detection even easier in the earlier stages of a spill. There can be problems with false positives and no thickness information can be inferred from the imagery. Three Coast Guard H-60 helicopters with FLIR (Forward Looking IR) capabilities are based in Astoria, OR. The King County Sheriff's Department, Special Operations has 4 FLIR equipped helicopters that can be made available to an emergency such as this incident. Neither of these sources was contacted and there was no surveillance of the spill for almost eight hours.

Another suggested method of tracking the slicks during nighttime hours would have been to deploy sorbent pads and/or lighted buoys to mark the oil as it spread out from the source. The white sorbent pads could have been tracked from vessels with lights. In this case the oil did not move as a single coherent slick but spread out over a large area with localized concentrations of heavier oil. Deployment of pads or lighted buoys may or may not have helped track these heavier concentrations.

Lesson learned: Do not rely entirely on trajectory model information for slick movement information. Take advantage of available IR technology to position skimmers in darkness.

Action: Deploy white sorbent pads or lighted buoys at the onset of a release during darkness with the understanding that they may not accurately move with the main concentrations of oil.

On-Water Oil Recovery Was Poor

There were 8 on-water skimmers (including 2 staged at Point Wells) and 3 Shallow Water Barges with a combined EDRC (Estimated Daily Recovery Capacity) of 61,450 barrels of oil. That is 2,580,900 gallons of recovery capacity but only 686 gallons of oil were recovered, 14.8 % of the 110 bbl (4620 gallons) spilled. EDRC is a Planning Standard that resulted from the Oil Pollution Act of 1990. Total EDRC on-scene on day 1 is a relative measure of the level of the response but it bears little resemblance to reality. It assigns the same recovery capability to a skimmer on day 100 of a spill as on day 1. It does not make estimates based on oil encountered by the skimmers, which on this spill was very low. If the oil is not contained immediately before it has a chance to thin and spread out over a wide area, low recovery volumes will result regardless of how

much EDRC is available to fight the problem. Based on the wide-spread sheens and the area coverage rates that even enhanced skimming systems can achieve, there was no mechanical recovery solution at this spill. The battle was lost when Chevron's boats failed to deploy boom when the spill was discovered. An uncontained spill in Puget Sound means beach impacts, which highlights the need for shoreline response resources including a trained cadre of beach cleaning personnel.

Lesson learned: Since an early response is difficult, assume the oil will impact beaches. EDRC is a planning standard and should not be used as an actual capability.

Action: Devise a more meaningful, realistic planning standard for mechanical recovery. Train and drill more beach cleaning personnel.

The SCAT To Beach Cleanup Process Didn't Work

When conducting the first SCAT (Shoreline Cleanup Assessment Team) on the Indianola beach there were only about five people working on cleanup as the other cleanup crews were waiting for SCAT to finish. More SCAT personnel are needed. Critical time was also wasted waiting for the SCAT cleanup recommendations to be processed through the Command Post at a time when maximum cleanup efforts would have made the most difference. SCAT should be able to expedite the information to someone from Operations who can get cleanup started immediately. Some communication with the command center should have occurred from the beach to ensure appropriate coordination and safety, but waiting for ICS204s to be generated from the SCAT report takes too long.

Lesson learned: More trained SCAT personnel are needed.

Action: Develop communications and procedures for deployment of Hotshot Teams. The normal ICS 204 process should be bypassed to get cleanup started when there is danger of oil refloating to come ashore again later.

More Depth In Trained Beach Cleaners Is Necessary

On the second day of the spill response beach clean-up began. Daytime high tides made the beach assessment and cleanup very difficult. The supervisor for the clean-up crews was asked if he could use additional people. He said he had all the experienced beach cleaners he could get and didn't want any inexperienced people. At this time the main area needing cleanup was less than 0.5 miles in length and only tens of yards wide. Had this spill been considerably larger in size the number of experienced beach cleaners would have been insufficient. There was an insufficient stockpile of snare boom for the beach cleanup.

Lesson learned: Any spill in Puget Sound is likely to go ashore. The next one could easily require more trained beach cleaners than this incident.

Action: as a contingency planning issue, should more emphasis be placed on a plan holder's ability to get experienced cleanup crews? Should this be addressed as a rule issue?

Trajectory

The initial NOAA verbal trajectory was developed using local wind data and NOAA tide tables. It predicted that the oil would move 1 to 2.5 miles N-NW of the spill site by 0800. The actual location of the main slick at 0900 was about 6 miles to the S-SW. Staging of the Whidbey Island GPS sites was based on the initial NOAA trajectory. When this proved wrong, the GPS sites were not put in place.

There was other information on movement of the oil. The Deputy Planning Section Chief detailed initial boom deployment at the source in his 20 January witness statement. At 0130 he noted the set of the current alongside the wharf at Point Wells was to the south instead of ebbing with a northerly component as predicted by the NOAA trajectory. At 0330 he arrived at the FMC ICP on Ewing Street and briefed the IC and staff.

Lesson learned: While the initial trajectory was in error, it did not cause a significant problem in resource allocation. Don't depend on a trajectory model as the sole source of information for the oil slick movement, especially when the source is close to shore.

Staffing Issues

The emergency phase of a spill response can be expected to be quite chaotic and this response was no exception. There were 136 people signed in to the Command Post on day 1. More were there that didn't sign in. Many of these people did not have identifiable jobs. Examination of the ICS211p entries for ICS Section/Assignment/Quals shows a Section designation for most people but no other information. On the other hand it can be argued that it is better to overreact in the beginning and demobilize people and equipment as they become unnecessary.

Staffing levels in the Situation Unit and the Resource Unit were inadequate. The ICS 209 document is very important to gauge the progress of the response. It describes the current status including the oil budget, equipment and personnel resources, shoreline and wildlife impacts, and the safety status. The ICS209s were poorly done and not well updated for press conferences. There was not adequate control over displays. The Display Processor let unauthorized people draw on and erase information from display boards. Responders were creating their own maps/displays.

There was a disconnect between the Command Post and field operations. Not enough information was being reported back to the Command Post. There were no field observers until day three. There's a need for field observers right away to see what resources are being brought in.

Lesson learned: Check-in personnel need to insure that everyone entering the Command Post has an ICS position or role. This is a question of balance. It is better to overreact with the number of personnel and equipment in the beginning and then demobilize as necessary. Personnel should be checked in and out every day of the response. This is important for safety and for billing purposes. There must be one and only one Situation Display. If the Situation Unit and Operations are close together it is easier to make this happen.

Action: Staffing levels and capabilities are ultimately determined by the RP. Create a mechanism for adding additional personnel identified by regulators as needs emerge. Drill the emergency (chaos) phase of an incident.

Disposal Plan Was Late

The Responsible Party and contractors did not produce a disposal plan until day three. It was an objective on day one (accurate accounting of waste) but it was not addressed at that time. There was no provision for anchoring contaminated vessels at night. There didn't seem to be a lot of sorbent waste for the first 24 hours.

Lesson learned: Follow up on objectives to insure they are being addressed.

Wildlife

Wildlife responders treated and released four birds. Wildlife professionals and trained volunteers recovered a total of twelve birds, five alive and seven dead. Three live birds died after capture. The U.S. Fish and Wildlife Service is evaluating the cause of the deaths. Two seals were found dead on separate beaches, probably not oil related. Wildlife recovery needs to be better integrated into the Unified Command. At times they seemed to be off doing their own thing and not coordinating with the UC.

Lesson learned: Wildlife impacts could have been much worse. Need to plan for Worst Case Discharge.

Action: More ICS training for Wildlife responders.

Tribal Participation

The Suquamish Tribe played a critical role in the response. Tribal notifications were made, but didn't trickle up rapidly within the tribe. The TOSC came on Day 2, was formally recognized as TOSC, and attended all meetings.

Lessons learned: Tribes need ICS training, emphasize the need for them to send more people to spills, especially those authorized to speak for the tribe.

Action: Emphasize the need for the tribes to come to drills. Document notifications\contacts. Document actions. Ask to have the council notified. Can we get the tribes to add a number for spill notification? Add info to GRPs?.

Public Affairs

There were several Public Affairs issues. There were some press interviews given by inappropriate personnel. All press releases and interviews should be approved by the JIC. Many stakeholders used and commented favorably on the State website. NOAA activated their website IncidentNews.

Lesson learned: who can put up a website? Are the photos the issue?

Action: NW Area Committee needs to address website issue.

Modification to Geographic Response Plans

Indianola Marsh GRP (CPS-07) strategy didn't work due to currents. Response crews deploying the GRPs need to be aware that they can improvise in how the strategy is deployed to make it work. The description in the GRP tables should be used as a general guideline and it should be recognized that at deployment time, conditions such as tides and winds are likely to be different than those encountered when the strategy was tested. The deployment crew needs to evaluate the strategy and determine if it needs to be modified to maximize protection of the specified resource.

Action: Modify GRPs identified as needing changes in this spill response. Develop procedure for approving deviation from the GRPs.

The State's Transponder System Was Not Activated

For three years WDOE has been working on a system to track oil spill response vessels by transponder. Transponders for 34 response vessels have been purchased and installed in vessels from Clean Sound, MSRC, NOAA, Ecology and Burrard Clean at Ecology expense. Significant and complex problems with the compatibility of the transponders and the tracking software have been experienced.

Action: Continue working on transponder software.

Things That Went Well...

-The SOSOC's first impression when he arrived at the Point Wells Command Post was that the response was aggressive; many resources were on-scene and enroute.

-Notifications

-Transfer of Command Post from Ewing Street to Point Wells.

-Objectives were set quickly

-Documentation went well. The Coast Guard assumed the DUL role and kept tight control. Four copies were made of all documents.

-The members of the Unified Command worked well together.

-Safety was a big plus, only one injury occurred.

-IAPs were out in a timely manner and before 5:00 PM so resources and supplies for the next operational Period could be procured.

-Food and Logistics were given high marks although there were some reports of meals not being available to beach cleaners.

-Closing the airspace with a Temporary Flight Restriction (TFR) was a good idea to keep others out of the way so Air Operations could continue safely.

-The State did an excellent job as Liaison with the elected officials on-site, but Liaison was demobilized too soon.

-There was good cooperation in completing the ICS 201; however the Actions Taken Section was incomplete.

-The Incident Command Post was in a good location and functioned well.

-Global Positioning Systems (GPS) units worked well for field operations.

-The Joint Information Center (JIC) worked well.

-The Tribe OSC fit well into the ICS.